## CLAIMS

*What is claimed is:*

1. A DSL system comprising:

a multiple loop segment, comprising K bonded loops providing up to (2K-1) communication channels; and

a controller coupled to the segment and configured to provide control signals used to operate the segment as a vectored system.

2. The DSL system of Claim 1 wherein the controller comprises vectoring control means and further wherein a customer vectoring unit (CVU) is coupled to a first end of the segment and to the vectoring means and further wherein a pedestal VU (PVU) is coupled to a second end of the segment and to the vectoring means.

3. The DSL system of Claim 2 wherein the PVU is in a pedestal and further wherein the CVU is in a customer premises.

4. The DSL system of Claim 2 wherein the PVU is in a first pedestal and further wherein the CVU is in a second pedestal.

5. The DSL system of Claim 2 wherein the PVU comprises a vector signal processing module coupled to the controller and further wherein the CVU comprises a vector signal processing module coupled to the controller.

6. The DSL system of Claim 1 wherein at least one of the communication channels is operated using an expanded frequency spectrum.

7. The DSL system of Claim 1 wherein the controller comprises means for controlling the frequency bandwidth used in transmitting data across the segment.

8. The DSL system of Claim 1 wherein the controller is a dynamic spectrum manager comprising vectoring control means comprising a computer system.

9. The DSL system of Claim 1 wherein the controller comprises a computer system.

10. The DSL system of Claim 1 further comprising a first impedance matching circuit coupled to a first end of the segment and a second impedance matching circuit coupled to a second end of the segment.

11. The DSL system of Claim 1 wherein the DSL system is an ADSL system.

12. The DSL system of Claim 1 wherein the DSL system is a VDSL system.

13. The DSL system of Claim 1 wherein the loops are bonded using one of the following bonding protocols:

TDIM bonding;

Ethernet bonding;

ATM bonding; or

the G.bond protocol.

14. A DSL system comprising:

a multiple loop segment, comprising K bonded loops providing up to (2K-1) communication channels on (2K-1) wires;

a first vectoring unit coupled to a first end of the segment and comprising a first vector signal processing module;

a second vectoring unit coupled to a second end of the segment and comprising a second vector signal processing module; and

wherein the first and second vectoring units provide vectored transmissions across the segment.

15. The DSL system of Claim 14 further comprising a controller coupled to the first and second vectoring units, wherein the controller comprises vectoring control means,

wherein the vectoring control means assists in regulating transmissions across the segment.

16. The DSL system of Claim 14 wherein the first vectoring unit is in a first pedestal and further wherein the second vectoring unit is in a second pedestal.

17. The DSL system of Claim 14 wherein the first vectoring unit is in a customer premises and further wherein the second vectoring unit is in a pedestal.

18. The DSL system of Claim 14 wherein the controller is a dynamic spectrum manager.

19. The DSL system of Claim 14 wherein the controller further comprises frequency bandwidth control means for regulating the frequency bandwidth used in transmissions across the segment.

20. The DSL system of Claim 14 further comprising a first impedance matching circuit coupled to the first end of the segment and a second impedance matching circuit coupled to the second end of the segment.

21. A DSL system comprising:

a multiple loop segment, comprising K bonded loops providing up to (2K-1)

communication channels on (2K-1) wires;

a first impedance matching circuit coupled to a first end of the segment;

a first vector signal processing module coupled to the first impedance matching circuit;

a second impedance matching circuit coupled to a second end of the segment;

a second vector signal processing module coupled to the second impedance matching circuit; and

a controller coupled to the first and second vector signal processing modules comprising:

means for collecting data regarding transmissions across the segment; and

means for controlling vectoring of transmissions across the segment;

wherein the first and second vector signal processing modules process transmissions across the segment.

22. The DSL system of Claim 21 wherein the first and second vector signal processing modules provide two-sided vectoring of transmissions across the segment.

23. The DSL system of Claim 21 wherein the first and second vector signal processing modules provide one-sided vectoring of transmissions across the segment.

24. The DSL system of Claim 21 wherein the segment couples customer premises

equipment to a pedestal.

25. The system of Claim 21 wherein the segment couples a first pedestal to a second pedestal.

26. A method of providing high speed DSL service, the method comprising:

bonding K loops to provide a multiple loop segment having up to (2K-1) communication channels; and

vectoring transmissions across the segment.

27. The method of Claim 26 wherein the segment has a first end coupled to a first vectoring unit and a second end coupled to a second vectoring unit.

28. The method of Claim 26 wherein vectoring transmissions across the segment comprises one-sided vectoring.

29. The method of Claim 26 wherein vectoring transmissions across the segment comprises two-sided vectoring.

30. The method of Claim 26 wherein the vectored transmissions across the segment utilize an expanded frequency spectrum on at least one channel.

31. The method of Claim 26 wherein a controller provides vectoring control signals to the segment.

32. The method of Claim 31 wherein the controller is a dynamic spectrum manager.

33. The method of Claim 31 wherein the controller is a DSM center.

34. The method of Claim 31 wherein the controller is a computer system.

35. The method of Claim 26 further comprising providing impedance matching circuits at each end of the segment.

36. The method of Claim 26 wherein bonding the loops comprises using one of the following bonding protocols:

TDIM bonding;

Ethernet bonding;

ATM bonding; or

the G.bond protocol.